

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

MHL TEK, LLC

vs.

NISSAN MOTOR CO., ET AL.

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CASE NO. 2:07-CV-289-TJW

MEMORANDUM OPINION AND ORDER

I. Introduction

Pending before the court are five motions for summary judgment of noninfringement filed by the Schrader/TRW defendants¹ (Dkt. No. 423), BMW and Porsche² defendants (Dkt. No. 426), Hyundai and Kia³ defendants (Dkt. No. 444), VW and Audi⁴ defendants (Dkt. No. 461), and Nissan⁵ defendants (Dkt. No. 607). The motions contend that the defendants' accused systems do not infringe the asserted claims literally or under the doctrine of equivalents. For the reasons stated below, BMW and Porsche's, Hyundai and Kia's, VW and Audi's, and Nissan's

¹ The "Schrader/TRW defendants" are Subaru of America, Inc., Subaru of Indiana Automotive, Inc., Nissan Motor Co., Ltd., Nissan North America, Inc., Nissan Technical Center North America, Inc., Hyundai Motor America, Hyundai Motor Co., Hyundai Motor Manufacturing Alabama, LLC, Kia Motors America, Inc., Kia Motors Corporation, Isuzu Motors, Ltd., and Isuzu Motors America, Inc.

² The "BMW and Porsche" defendants are BMW AG, BMW of North America, LLC, BMW Manufacturing Co., LLC, Dr. Ing. h.c. F. Porsche AG, and Porsche Cars North America, Inc.

³ The "Hyundai and Kia" defendants are Hyundai Motor America, Hyundai Motor Co., Hyundai Motor Manufacturing Alabama, LLC, Kia Motors America, Inc., and Kia Motors Corporation.

⁴ The "VW and Audi" defendants are Volkswagen AG, Volkswagen Group of America, Inc., and Audi AG.

⁵ The "Nissan" defendants are Nissan Motor Co., Ltd. and Nissan North America, Inc.

motions for summary judgment are GRANTED, and the Schrader/TRW defendants' motion for summary judgment is GRANTED in part. Because three of the Schrader/TRW defendants, Nissan Technical Center North America, Inc., Isuzu Motors, Ltd., and Isuzu Motors America, Inc., have been dismissed from this case, the motion for summary judgment as to Nissan Technical Center North America, Inc., Isuzu Motors, Ltd., and Isuzu Motors America, Inc. is denied as moot.

II. Factual and Procedural Background

On July 13, 2007, the plaintiff MHL Tek, LLC ("MHL") filed suit against BMW AG, BMW of North America, LLC, BMW Manufacturing Co., LLC, Isuzu Motors, Ltd., Isuzu Motors America, Inc., Subaru of America, Inc., Subaru of Indiana Automotive, Inc., Nissan Motor Co., Ltd., Nissan North America, Inc., Nissan Technical Center North America, Inc., Dr. Ing. h.c. F. Porsche AG, Porsche Cars North America, Inc., Hyundai Motor America, Hyundai Motor Co., Hyundai Motor Manufacturing Alabama, LLC, Kia Motors America, Inc., and Kia Motors Corporation for patent infringement. MHL alleges that the defendants infringe U.S. Patent No. 5,731,516 ("the '516 patent"), which discloses a tire pressure monitoring system ("TPMS").

The motions for summary judgment contend that the movants' accused TPMS sensors do not infringe the '516 patent. The asserted claims of the '516 patent require the TPMS sensor to have a "cylindrical housing," which the court has previously defined as "a housing that is generally cylindrical in shape." The movants argue that their sensors' housings are not "generally cylindrical," and therefore do not literally infringe the asserted claims. The movants also contend that their sensors do not infringe the "cylindrical housing" term under the

doctrine of equivalents because of the all elements rule and prosecution history estoppel.⁶

III. Analysis

A. Applicable Law

1. Summary Judgment

A grant of summary judgment is proper if the pleadings and evidence show that “there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(c); *Celotex Corp. v. Catrett*, 477 U.S. 317, 322-23 (1986); *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248-55 (1986). “Summary judgment is as appropriate in a patent case as it is in any other case.” *C.R. Bard, Inc. v. Advanced Cardiovascular Sys., Inc.*, 911 F.2d 670, 672 (Fed. Cir. 1990).

When the summary judgment movant demonstrates the absence of a genuine dispute over any material fact, the burden shifts to the non-movant to show there is a genuine factual issue for trial. *Celotex*, 477 U.S. at 323-24. When a claim limitation is not present in an accused device, either literally or under the doctrine of equivalents, the court must grant summary judgment of noninfringement. *See Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n.8 (1997); *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353-54 (Fed. Cir. 1998).

2. Literal Infringement

An infringement analysis requires comparison of the construed patent claims to the accused devices. *Carroll Touch, Inc. v. Electro Mech. Sys., Inc.*, 15 F.3d 1573, 1577 (Fed. Cir.

⁶ In addition, the movants argue that the plaintiff should be barred from asserting the doctrine of equivalents because MHL failed to disclose its equivalency theory in its infringement contentions. Because the court grants the motions for summary judgment based on the all elements rule and prosecution history estoppel, MHL’s alleged procedural failure need not be addressed.

1993). This determination of infringement is a question of fact. *Wright Med. Tech., Inc. v. Osteonics Corp.*, 122 F.3d 1440, 1443 (Fed. Cir. 1997). In the absence of a genuine dispute regarding the structure or function of the accused product, the question of infringement may collapse into one of claim construction and thus is well suited for summary judgment. *Wang Labs., Inc. v. Am. Online, Inc.*, 197 F.3d 1377, 1381 (Fed. Cir. 1999); *Laitram Corp. v. Morehouse Indus., Inc.*, 143 F.3d 1456, 1461-62 (Fed. Cir. 1998). Literal infringement requires the accused device to contain each claim limitation exactly. *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1330 (Fed. Cir. 2001); *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1454 (Fed. Cir. 1998). As a matter of law, the absence of a single claim limitation from the accused product precludes literal infringement. *Wolverine World Wide Inc. v. Nike, Inc.*, 38 F.3d 1192, 1196 (Fed. Cir. 1994). A dependent claim cannot be infringed unless the claim from which it depends is infringed. *Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1552 n.9 (Fed. Cir. 1989).

3. All Elements Rule

The all elements rule limits application of the doctrine of equivalents. Under the doctrine of equivalents, an accused device may infringe if it performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed invention. *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934-935 (Fed. Cir. 1987) (en banc), *abrogated on other grounds by Cardinal Chem. Co. v. Morton Int'l, Inc.*, 508 U.S. 83, 113 (1993). But the doctrine of equivalents does not permit the patentee to ignore claim limitations. *Id.* Under the “all elements rule,” every claim limitation is material, and no claim limitation may be read completely out of a claim. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469

F.3d 1005, 1016-17 (Fed. Cir. 2006) (citing *Warner-Jenkinson*, 520 U.S. at 29). “Thus, under the particular facts of a case, . . . if a theory of equivalence would entirely vitiate a particular claim element, partial or complete judgment [of noninfringement] should be rendered by the court” *Warner-Jenkinson*, 520 U.S. at 39 n.8.

4. *Prosecution History Estoppel*

Prosecution history estoppel may prevent the patentee from asserting doctrine of equivalents infringement if the claim scope was narrowed during patent prosecution. *Honeywell Int’l Inc. v. Hamilton Sundstrand Corp.*, 370 F.3d 1131, 1139 (Fed. Cir. 2004) (en banc). Prosecution history estoppel bars the application of doctrine of equivalents to recapture subject matter that was surrendered during prosecution. *Hilgraeve Corp. v. McAfee Assocs., Inc.*, 224 F.3d 1349, 1355 (Fed. Cir. 2000). Prosecution history estoppel does not apply to all narrowing amendments, but only those changes made to satisfy patentability requirements. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.* (Festo VIII), 535 U.S. 722, 736 (2002). If the claim scope is narrowed during prosecution, the law presumes that the narrowing amendment was made to satisfy patentability requirements, and thus prosecution history estoppel applies. *Warner-Jenkinson*, 520 U.S. at 33. The patentee may overcome this presumption by demonstrating that the reason for the amendment is unrelated to patentability. *Pioneer Magnetics, Inc. v. Micro Linear Corp.*, 330 F.3d 1352, 1356 (Fed. Cir. 2003). Prosecution history estoppel, including “the determinations concerning whether the presumption of surrender has arisen and whether it has been rebutted, [is a] question[] of law for the court, not a jury, to decide.” *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.* (Festo IX), 344 F.3d 1359, 1368 (Fed. Cir. 2003) (en banc).

B. Literal Infringement

The movants argue that the accused devices do not literally infringe the ‘516 patent claims because they do not have “cylindrical housing[s].” The defendants allege that their TPMS sensors have irregular, rectangular, or T-shaped housings.

As a preliminary matter, MHL asserts that the accused products’ housings, as defined in the ‘516 patent, include not only the electronics enclosure but also the valve stem portion. Each of the independent claims states that the housing includes “an elongate portion,” which is the valve stem.⁷ Thus, in determining the shape of the accused products’ housings, the court agrees that both the electronics enclosure and the valve stem must be considered.

MHL next argues that “cylindrical” should be broadly interpreted to encompass many categories of shapes. The court has defined “cylindrical housing” as “a housing that is generally cylindrical in shape.” MHL emphasizes the importance of the “generally” modifier, which indicates that the housing need not resemble a perfectly-shaped cylinder. According to MHL’s expert, Dr. Moon, a “[g]eneralized cylinder (GC) is a class of parametric shapes that is very flexible and capable of modeling many different types of real-world objects.” In Dr. Moon’s opinion, “a person of skill in the art . . . would understand cylinder to include the much broader class of shapes of straight-, curved- and/or segmented-axis generalized cylinders whose cross-sections can vary along their axial length.”

⁷ Independent claim 10 reads, “the housing including an *elongate portion* adapted for extension through an aperture of the wheel for threaded engagement with a valve cap.” ‘516 patent, 20:23-26 (emphasis added). Independent claims 1 and 7 both state, “the housing including an *elongate portion* adapted for extension through an aperture of the wheel,” ‘516 patent, 18:67-19:2 & 19:40-42 (emphasis added). Claims 1 and 7 both have dependent claims which clarify that “the elongate portion is adapted for threaded engagement with a valve cap.” ‘516 patent, claims 2 & 8.

In light of their broad definition of “generally cylindrical,” both of MHL’s infringement experts contend that the defendants’ sensors have housings with generally cylindrical valve stems and generally cylindrical electronics enclosures. Dr. Moon states that the electronics enclosures have a “generally polygonal/rectangular” or “generally polygonal” cylindrical shape. Likewise, Dr. Joy describes the electronics enclosure as generally a “square or rectangular cylinder.”

It is the court’s duty to construe the term “cylindraceous,” and in turn, “generally cylindrical.” *See O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008) (holding that the court, not the jury, must resolve claim construction disputes). As noted in the court’s claim construction order, “cylindraceous” is not defined in the ‘516 patent’s specification or file history. Therefore, during claim construction, MHL proposed that the ordinary meaning should be adopted and use of a dictionary definition was appropriate. Likewise, in further refining the meaning of “generally cylindrical,” the court determines that a general purpose dictionary provides suitable guidance. *See also Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed Cir. 2008) (“When the intrinsic evidence is silent as to the plain meaning of a term, it is entirely appropriate for the district court to look to dictionaries . . .”). The dictionary definition of “cylinder” is “the surface traced by a straight line moving parallel to a fixed straight line and intersecting a fixed planar closed *curve*.” Merriam-Webster’s Collegiate Dictionary 311 (11th ed. 2003) (emphasis added). The modifier “generally,” as used in “generally cylindrical,” is a term of approximation. *Playtex Prods., Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 908 (Fed. Cir. 2005); *see id.* at 520 (defining “general” to mean “not confined . . . by careful limitation”).

The court is not persuaded that the term “generally cylindrical” describes electronics enclosures with substantially rectangular cross-sections. Although MHL’s experts contend that the accused electronic enclosures are generally cylindrical, the difference between the shape limitation of the ‘516 patent claims and the shapes of the accused devices is readily evident and does not require explanation by experts. *Cf. Union Carbide Corp. v. Am. Can Co.*, 724 F.2d 1567, 1573 (Fed. Cir. 1984) (holding that prior art references and patented invention were easily understandable without expert testimony). As stated by the dictionary definition, the cross-section of a cylinder is a closed curve, e.g., an ellipse. While “generally” expands the scope of “cylindrical” somewhat, one of ordinary skill in the art would not find that the terms “cylindrical” and “generally cylindrical” include shapes with substantially rectangular cross sections. *See generally Newell Operating Co. v. Intercrown USA*, 2008 WL 5760155, at *12 (N.D. Ill. May 5, 2008), *adopted by* 2008 WL 5760152 (N.D. Ill. June 13, 2008) (“But in using the phrase ‘generally cylindrical support post’ in the claims, the inventors excluded posts with square or diamond-shaped cross sections”). Therefore, the court finds that the electronics enclosures of the defendants’ sensors are not generally cylindrical.

Even if the court were to accept Dr. Moon’s and Dr. Joy’s opinion that the electronics enclosures are generally cylindrical, it does not automatically follow that the overall housings, including the valve stems, are generally cylindrical. The court’s *Markman* opinion “reject[ed] the plaintiff’s proposed construction [of ‘cylindrical’] that only a portion—any portion—of the housing needs to be cylindrical.” Instead, the court ruled that the entire housing must be generically cylindrical. MHL now attempts to resurrect this argument by contending that a generally cylindrical valve stem attached to an allegedly generally cylindrical electronics

enclosure automatically creates a generally cylindrical housing. In the patent's preferred embodiment, disclosed in Figure 7 of the '516 patent, the combination of a valve stem and electronics enclosure does result in a generally cylindrical housing. The preferred embodiment has the longitudinal axis of the generally cylindrical valve stem aligned with the longitudinal axis of the generally cylindrical electronics enclosure. '516 patent, Fig. 7. In contrast, the defendants' sensors have valve stems that are oriented perpendicularly to the longitudinal axis of the electronics enclosure. Thus, the housings are essentially T-shaped. Because no reasonable jury could find that the housings of the accused devices are generally cylindrical, the court grants summary judgment of no literal infringement.

C. All Elements Rule

The defendants argue that the accused products do not infringe under the doctrine of equivalents because MHL's theory of equivalence would violate the all elements rule. If the accused housings, which are generally T-shaped and have electronics enclosures with substantially rectangular cross sections, are found to be substantially "cylindraceous," then the defendants contend that any shape would meet this limitation. As such, the cylindraceous claim limitation would be improperly vitiated, according to the defendants.

No precise formula exists for determining whether a particular theory of equivalents would vitiate a claim element and violate the all elements rule. *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1359 (Fed. Cir. 2005). "Rather, courts must consider the totality of the circumstances of each case and determine whether the alleged equivalent can be fairly characterized as an insubstantial change from the claimed subject matter without rendering the pertinent limitation meaningless." *Id.* Some of the factors considered by the Federal Circuit

include (1) “the simplicity of the structure”; (2) “the specificity and narrowness of the claim”; and (3) “the foreseeability of variations at the time of filing the claim with the PTO.” *Id.* (citing *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997)).

In this case, the claimed housing structure is quite simple; it consists of an electronics enclosure and a valve stem. Like the disposal device in *Sage Products*, the plaintiff’s claimed sensor housing is “a relatively simple structural device.” *See Sage Prods.*, 126 F.3d at 1425. As to “the specificity and narrowness of the claim,” the “-ceous” suffix in “cylindrical” broadens the literal claim scope beyond a perfect cylinder and introduces some ambiguity. Finally, housing shape variations were foreseeable to the ‘516 patent applicants at the time of filing; variations in housing shapes were not made possible only through some later-developed technology. For example, prior art tire pressure monitoring sensors had electronic enclosures with rectangular cross sections.⁸

The Federal Circuit has applied the all elements rule where application of the doctrine of equivalents would vitiate a shape limitation. In *Tronzo v. Biomet, Inc.*, 156 F.3d 1154 (Fed. Cir. 1998), the Federal Circuit reversed a finding that the accused products’ “hemispherical” outer surface infringed the claimed “generally conical outer surface” under the doctrine of equivalents. *Id.* at 1160. According to the plaintiff’s expert, “any other shape” would “function[] almost exactly the same way” and thus be equivalent to the claimed “generally conical outer surface.” *Id.* The court held that the plaintiff’s equivalence theory was impermissible, because it would write the “generally conical outer surface” limitation out of the claims. *Id.*

⁸ The named inventors of the ‘516 patent cited U.S. Patent Nos. 3,329,934, 4,975,679, and 5,109,213 as prior art during prosecution of two other tire pressure monitoring patents.

The plaintiff denies that the all elements rule bars its equivalence theory. MHL argues that (1) the all-elements rule is not a legal test separate from the doctrine of equivalents; (2) there is an insubstantial difference between the shape of the accused housings and the cylindraceous claim limitation; and (3) MHL's experts do not contend that all shapes are equivalent to cylindraceous.

MHL first argues that the "attempt to cast the all-elements rule as a legal analysis in which the Court must engage prior to submitting the doctrine of equivalents issue to the jury is misguided." Instead, the fact finder must apply the insubstantial differences test used to determine equivalence. In support of its argument, MHL cites several Federal Circuit opinions and concurrences that allegedly question application of the all elements rule as a test independent of the doctrine of equivalents. *Nystrom v. Trex Co.*, 580 F.3d 1281, 1287 (Fed. Cir. 2009) (Rader, J., concurring); *Voda v. Cordis Corp.*, 536 F.3d 1311, 1325 n.5 (Fed. Cir. 2008); *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1018-19 (Fed. Cir. 2006); *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 149 F.3d 1309, 1317 (Fed. Cir. 1998).

Both the Supreme Court and the Federal Circuit en banc have held that the all elements rule is a separate limitation on the doctrine of equivalents, and where a finding of equivalence would violate the all elements rule, courts should rule there is no infringement under the doctrine of equivalents. *Warner-Jenkinson*, 520 U.S. at 39 n.8; *Festo VII*, 234 F.3d at 587. This court will follow binding precedent and apply the all elements rule. Because the all elements rule is at issue, and not the validity of MHL's factual arguments regarding equivalence, the court will not address the plaintiff's insubstantial differences contention.

Finally, MHL argues that neither of its experts contend that all shapes are equivalent to

“cylindraceous” or “generally cylindrical.” Therefore, according to MHL, the *Tronzo* case is inapposite, and the plaintiff’s theory of equivalence does not vitiate the claim term. *See DePuy Spine*, 469 F.3d at 1019-1020 (noting that the plaintiff’s expert did not propose that any shaped would meet the “spherically-shaped” limitation at issue).

MHL’s expert Dr. Joy does state, however, that the shape of the housings’ electronic enclosure is irrelevant for determining equivalence:

The exact shape of the interior, electronics housing portion is unrelated to the operation and function of the sensor. Many possible shapes of the interior housing portion are possible and interchangeable, and sensors having various shapes for the interior housing portion would perform substantially the same function, in substantially the same way, to produce substantially the same result.

Like the expert in *Tronzo*, Dr. Joy opines that the accused devices’ shape does not matter because any shape would function in substantially the same manner. While MHL’s other expert, Dr. Moon, does not disclaim the importance of shape, her definition of “cylinder” is nearly limitless. As discussed *supra* in section III.B, Dr. Moon states that the term “cylinder” literally covers “straight-, curved- and/or segmented-axis generalized cylinders whose cross-sections can vary along their axial length.” Dr. Moon’s examples of objects that are not literally “generally cylindrical” are a fork, a tree stand, a hat rack, and a pair of eyeglasses. Without even considering equivalence, Dr. Moon’s interpretation of “generally cylindrical” encompasses the vast majority of three-dimensional objects.

MHL attempts to cast a wide net to capture the accused housings under the cylindraceous limitation or its equivalents. In doing so, MHL’s experts either discount the ‘516 patent’s shape limitation or expand the coverage of “cylindraceous” so broadly that, as a practical matter, it covers all realistic housing shapes. In sum, MHL’s equivalence theory would vitiate the

cylindrical claim limitation. Therefore, under the all elements rule, the accused devices cannot infringe the ‘516 patent claims under the doctrine of equivalents.

D. Prosecution History Estoppel

The defendants also contend that prosecution history estoppel bars MHL from asserting infringement through the doctrine of equivalents. According to the defendants, MHL is estopped because (1) divisional applications claiming TPMS sensors were filed, (2) estoppel may arise even in the absence of a PTO rejection, (3) the claims in the divisional application contain additional limitations, and (4) MHL has not rebutted the presumption that the claims were narrowed for patentability reasons.

1. Divisional Applications with TPMS Sensor Claims

The defendants allege that MHL effectively amended the original TPMS sensor claims by filing divisional applications that claimed essentially the same subject matter. MHL challenges this assertion by arguing that the original claims were never amended and the new claims in the divisional application have no relationship to the claims in the original application.

The ‘516 patent claims priority to U.S. Patent Application No. 08/332,200 (“the ‘200 application”). Claims 10-17 of the ‘200 application claimed “a system for monitoring a parameter of a tire” using means-plus-function language. After disclosing prior art to the PTO, but before the PTO issued its first office action, the applicants filed U.S. Patent Application No. 08/476,613 (“the ‘613 application”), a divisional of the ‘200 application. The ‘613 application contains new apparatus claims for transponders comprising a “generally cylindrical . . . housing.” Later, the applicants filed U.S. Patent Application No. 08/642,156 (the “‘156 application”), which is a divisional of the ‘613 application, and the ‘156 application

contains a “cylindrical housing” limitation. The ‘156 application issued as the ‘516 patent. Some time after the ‘156 application was filed, the PTO issued a final rejection of the ‘200 application’s claims as unpatentable. The applicants abandoned the ‘200 application.

MHL first argues that the ‘200 application’s claims were not amended, so prosecution history estoppel does not apply. Generally, prosecution history estoppel arises when claims are amended to narrow their scope. *Festo VIII*, 535 U.S. at 737. But courts also apply prosecution history estoppel when the applicant replaces original claims with new, narrower claims. *Deering Precision Instruments, L.L.C. v. Vector Distribution Sys., Inc.*, 347 F.3d 1314, 1325 (Fed. Cir. 2003); *Desper Prods., Inc. v. QSound Labs, Inc.*, 157 F.3d 1325, 1340 (Fed. Cir. 1998); *Mark I Mktg. Corp. v. R.R. Donnelley & Sons Co.*, 66 F.3d 285, 291-92 (Fed. Cir. 1995). In *Deering*, the applicant deleted a rejected claim and replaced it with a new claim that contained an additional limitation. *Deering*, 347 F.3d at 1325. By settling for new claims containing an additional limitation, the applicant “clearly disclaimed the territory between the original claim [] and new claim [] as issued.” *Id.* Likewise, in *Mark I*, the PTO rejected the original application’s broad claims. *Mark I*, 66 F.3d at 291. Instead of responding to that rejection, the applicant filed a continuation-in-part application with new claims that contained additional limitations. *Id.* In turn, the claims in the continuation-in-part application were rejected, and the applicant once again filed another continuation-in-part with narrower claims. *Id.* The Federal Circuit held that the patent’s prosecution history includes not only the application from which the patent issued, but also the parent and grandparent applications as well. *Id.* Thus, prosecution history estoppel may arise when narrower continuing applications are filed. *Id.* at 292.

Like the patent applications in *Deering* and *Mark I*, the claim limitation at issue in this

case was not added via amendment. Instead, the applicants submitted new claims through divisional applications. Because prosecution history estoppel may arise through filing new, narrowed claims, the lack of an amendment to the ‘200 application does not automatically foreclose the defendants’ estoppel argument.

MHL argues next that the new claims in the ‘613 and ‘156 applications are unrelated to the original claims in the ‘200 application. The plaintiff emphasizes that the ‘613 and ‘156 applications are divisionals, not continuations. MHL contends that the difference between divisional and continuation applications prevents the court from applying prosecution history estoppel to the ‘516 patent. MHL notes that a divisional application, unlike a continuation, is a “later application for an independent or distinct invention.” Manual of Patent Examining Procedure § 201.06. MHL also quotes *Biogen, Inc. v. Berlex Laboratories, Inc.*, 318 F.3d 1132 (Fed. Cir. 2003): “When the applicant is seeking different claims in a divisional application, estoppel generally does not arise from the prosecution of the parent.” *Id.* at 1141. According to the plaintiff, the defendants’ cited cases, in which estoppel arises from the filing of continuing applications, do not apply to the divisional applications at issue.

The court in *Aventis Pharmaceuticals, Inc. v. Barr Laboratories, Inc.*, 335 F. Supp. 2d 558 (D.N.J. 2004) rejected the same arguments made by MHL and held that prosecution history estoppel applied to a patent that issued from a divisional application. *Id.* at 572-74. Like MHL, the plaintiff in *Aventis* cited *Biogen* and argued that there is a crucial legal distinction between continuing and divisional applications. *Id.* at 572-73. The court rejected the plaintiff’s misplaced reliance on *Biogen*, because *Biogen* concerns argument-based estoppel, not amendment-based estoppel. *Id.* at 573 (citing *Biogen*, 318 F.3d at 1141). In the context of

amendment-based estoppel, the Federal Circuit broadly considers the prosecution history of applications and related patents, *id.* (citing *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 980 (Fed. Cir. 1999); *Jonsson v. Stanley Works*, 903 F.2d 812, 817 (Fed. Cir. 1990)), and applies prosecution history estoppel to patents arising from divisional applications, *id.* (citing *Desper Prods. v. QSound Lab.*, 157 F.3d 1325, 1339 (Fed. Cir. 1998)). In sum, the Federal Circuit “manifest[s] an approach that considers the prosecution histories of related applications and patents broadly and inclusively, avoiding purely formalistic distinctions . . . between a continuation and a divisional application.” *Id.*; see also *Witness Sys., Inc. v. Nice Sys., Inc.*, 2008 WL 2047633, at *3-4 (N.D. Ga. May 10, 2008) (holding that an narrowing amendment in a divisional application was made in response to a rejection in the parent application, and thus satisfied the first prong of *Festo*) (adopting the recommendation of the special master).

The court is not persuaded that MHL can avoid prosecution history estoppel merely because the ‘613 and ‘156 applications are divisionals. The ‘613 and ‘156 applications do not appear to have been filed in response to a PTO restriction requirement, but were voluntarily submitted by the applicants.⁹ As such, for the purpose of determining the applicability of prosecution history estoppel, the court finds no relevant difference between the divisional ‘613 and ‘156 applications and a continuation application.

MHL next argues that the applicants submitted new claims in the ‘613 and ‘156 applications that are unrelated to the ‘200 application’s claims. MHL notes that “the ‘200 application claimed ‘methods’ and ‘systems’ for tire pressure monitoring, while the ‘156

⁹ See United States Patent and Trademark Office, Patent Application Information Retrieval, <http://portal.uspto.gov/external/portal/pair> (providing summary of patent prosecution history).

application claimed the independent and distinct wheel sensor apparatus.”

The following is claim 10, the independent tire pressure system claim of the ‘200 application:

A system for monitoring a parameter of a tire mounted on a conductive wheel, the system comprising:

- means for generating a signal responsive to a parameter of the tire;
- means for conditioning the generated signal for transmission from the conductive wheel;
- means for transmitting the conditioned signal via the conductive wheel so as to reduce a frequency shift induced by rotation of the wheel;
- means for receiving the transmitted signal; and
- means for monitoring the tire parameter by monitoring the received signal.

‘200 application, claim 10. For comparison, claim 1 of the ‘516 patent reads as follows:

Apparatus for monitoring inflation pressure of a pneumatic tire mounted on a conductive wheel, the apparatus comprising:

- a cylindraceous housing having a passage to allow air ingress and egress to and from the pneumatic tire, the housing including an elongate portion adapted for extension through an aperture of the wheel, the housing also including a conductive portion, the elongate portion being sized to allow the conductive portion of the housing to contact the conductive wheel to allow transmission of the signal using the conductive wheel;
- a pressure transducer disposed within the housing in fluid communication with the pneumatic tire for providing a signal indicative of the inflation pressure;
- an electronic circuit for monitoring the signal and conditioning the signal for transmission to a remote receiver; and
- a needle and spring disposed within one end of the elongate portion to selectively control inflation or deflation of the pneumatic tire.

‘516 patent, 18:63-19:21.

Both claim 1 of the ‘516 patent and claim 10 of the ‘200 application claim tire pressure monitoring sensors; the primary differences between the two claims is claim 10 is written in means-plus-function format, and claim 1 has additional limitations. The preambles indicate that

both devices are mounted on a conductive wheel. The device in claim 1 monitors tire inflation pressure, while the device in claim 10 monitors a tire parameter, but dependent claim 11 of the '200 application limits claim 10's "tire parameter" to "inflation pressure of the tire." Claim 10's "means for generating a signal responsive to a parameter of the tire" corresponds to claim 1's "a pressure transducer . . . for providing a signal indicative of the inflation pressure." Claim 10's "means for conditioning the generated signal for transmission from the conductive wheel" corresponds to claim 1's "an electronic circuit for . . . conditioning the signal for transmission to a remote receiver." Claim 10's "means for transmitting the conditioned signal via the conductive wheel" corresponds to claim 1's "the cylindraceous housing . . . allow[s] transmission of the signal using the conductive wheel." Claim 10's "means for receiving the transmitted signal" and "means for monitoring . . . the received signal" do not correspond to the functions of the tire pressure monitoring sensor itself; these functions are performed by user interface and receiver that are disclosed but not claimed in the '516 patent. *See* '516 patent, 6:32-39.

The court concludes that the apparatus claims of the '613 and '156 applications are not "independent and distinct" in comparison to the system claims of the '200 application. Instead, the parent '200 application claimed the entire tire monitoring system, and certain limitations embraced the sensor apparatus claimed by the divisional '613 and '156 applications. Thus, the court determines that it is appropriate to consider the '200 application's claims as part of the '516 patent's prosecution history.

2. Absence of PTO Rejection

MHL also argues that prosecution history estoppel does not apply because the narrower claims were not submitted in response to a rejection by the PTO. The divisional '613

application, which has the “generally cylindrical” claim limitations, was filed prior to the PTO’s first office action on the original ‘200 application.

“[T]he mere fact that an amendment is voluntary does not shield it from prosecution history estoppel.” *Pioneer Magnetics, Inc. v. Micro Linear Corp.*, 330 F.3d 1352, 1357 (Fed. Cir. 2003). In *Pioneer Magnetics*, the patentee’s amendment, which added a narrowing limitation, was not offered in response to any PTO rejection. *Id.* Despite the patentee offering the amendment, *sua sponte*, the court held that the patentee failed to rebut the presumption that prosecution history estoppel applied. *Id.*; see also *Amgen v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1345 (Fed. Cir. 2003) (upholding the district court’s finding that a voluntary amendment was made to avoid a rejection and thus stating that the amendment may give rise to estoppel).

Like the amendment in *Pioneer Magnetics*, the narrowed claims in this case were submitted before the PTO rejected the original claims. But the voluntary surrender of subject matter claimed in the ‘200 application does not prevent application of prosecution history estoppel to the ‘516 patent claims.

3. *New Claims Contain Additional Limitations*

The defendants argue that prosecution history estoppel applies because the subsequent divisional applications narrowed the claim scope. Specifically, the applicants point to the addition of the “cylindraceous” limitation.

Means-plus-function claim terms are governed by § 112, ¶ 6, which states that a claim term “may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to

cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112, ¶ 6. As discussed above, the claimed system in the ‘200 application includes means for generating a signal representing a tire parameter, means for conditioning the signal, and means for transmitting the signal; these means correspond to the tire pressure monitoring sensor apparatus in the later-filed claims. Although Figure 7 of the ‘200 application depicts a generally cylindrical sensor housing, the application does not disclaim housings with different shapes or indicate that generally cylindrical housings are advantageous. Therefore, the literal scope of the means-plus-function claims would not be limited to housings of a generally cylindrical shape, even assuming that Figure 7 is corresponding structure. *See Serrano v. Telular Corp.*, 111 F.3d 1578, 1583 (Fed. Cir. 1997) (holding that a means clause shall be construed to cover structure disclosed in the specification and any equivalents). When the applicants filed the ‘613 and ‘156 applications that claimed specific housing structure, they surrendered broader claims to other housing shapes. *See generally Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.* (Festo VII), 234 F.3d 558, 589 (Fed. Cir. 2000) (en banc), *vacated and remanded on other grounds*, 535 U.S. 722 (2002) (“[A] claim amendment that replaces means-plus-function language with language reciting the corresponding structure narrows the literal scope of the claim.”). Because the applicants surrendered claimed subject matter, the *Festo* presumption of prosecution history estoppel applies.

4. *Rebuttal of Patentability Presumption*

Once it is established that the applicants narrowed the scope of their claims, the burden is on the patentee to prove that the claims were not narrowed for purposes of patentability. *Festo VIII*, 535 U.S. at 739-40; *Warner-Jenkinson*, 520 U.S. at 33. When the patentee provides no

explanation for the narrowing of the claim, “a court should presume that the applicant had a substantial reason related to patentability for the amendment.” *Pioneer Magnetics*, 330 F.3d at 1356. The parties have not pointed to any statements in the prosecution history that shed light on why the “generally cylindrical” or “cylindraceous” limitations were added.

The defendants assert that discovery and disclosure of allegedly invalidating prior art led to the filing of narrower claims. In March 1995, during prosecution of the ‘200 application, the applicants submitted an Information Disclosure Statement to the PTO. One of the prior art references disclosed to the PTO was U.S. Patent No. 4,717,905 (“Morrison ‘905 patent”). Soon thereafter, on June 7, 1995, the applicants filed the divisional ‘613 application. Later, the PTO issued a final rejection on the ‘200 application’s claims because they were unpatentable over the Morrison ‘905 patent. Therefore, according to the defendants, it appears that the applicants filed new claims containing the housing shape limitations to avoid prior art.

To rebut the patentability presumption, MHL first points out that the applicants continued to prosecute the original claims in the ‘200 application well after the divisional applications were filed. According to MHL, the continued prosecution of the ‘200 application demonstrates that the divisional applications were not filed for patentability reasons. Second, MHL offers a letter from the prosecuting attorney to the applicants expressing his opinion that the ‘200 application should be patentable over the newly discovered prior art.

The continued prosecution of the ‘200 application does not rebut the presumption that the narrower claims were filed for patentability reasons. The PTO issued a final rejection on the ‘200 application’s broad claims, the Board of Patent Appeals and Interferences upheld the rejection, and the applicants abandoned the ‘200 application. A competitor who examined the


‘516 patent’s file wrapper and learned that the broad original claims were rejected while the narrower “cylindrical” claims were approved would reasonably believe that the applicants surrendered the non-cylindrical housing shapes for patentability reasons. *See Zenith Labs., Inc. v. Bristol-Myers Squibb Co.*, 19 F.3d 1418, 1424 (Fed. Cir. 1994). Furthermore, MHL may not rely on a private letter sent by the prosecuting attorney to rebut the patentability presumption. “Only the public record of the patent prosecution, the prosecution history, can be a basis for such a reason. Otherwise the public notice function of the patent record would be undermined.” *Pioneer Magnetics*, 330 F.3d at 1356. In all, MHL has failed to rebut the presumption that the cylindrical housing limitation was added for patentability reasons.

The defendants have demonstrated that a presumption of prosecution history estoppel applies because the applicants filed a new application containing narrower claims. MHL has not provided sufficient evidence to rebut the presumption that the subject matter was surrendered to avoid an anticipation or obviousness rejection. Therefore, prosecution history estoppel applies, and MHL may not rely upon the doctrine of equivalents for the “cylindrical housing” claim term.

IV. Conclusion

For all the foregoing reasons, BMW and Porsche’s, Hyundai and Kia’s, VW and Audi’s, and Nissan’s motions for summary judgment are GRANTED, and the Schrader/TRW defendants’ motion for summary judgment is GRANTED in part. The accused devices do not literally infringe the asserted claims of the ‘516 patent. Furthermore, the all elements rule and prosecution history estoppel bar MHL from asserting infringement under the doctrine of equivalents.

SIGNED this 24th day of February, 2010.

A handwritten signature in black ink, reading "T. John Ward". The signature is written in a cursive style with a large, stylized "T" and "W".

T. JOHN WARD

UNITED STATES DISTRICT JUDGE